

Infant Resuscitator Valve:

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Demand:

This is a design for infant-sized resuscitator. Birth asphyxia is one of the leading killers of neonates in the developing world, and Kenya is no exception. As a part of a research trip in Nairobi slums and western Kenya, a list of desired medical equipment was compiled, and a resuscitator represents a commonly desired piece of equipment in hospitals and clinics. This 3D-printable file is an attempt to create such a device with as few non-printed components as possible, as the facilities in need of this tool may not have access to the necessary components.

Safety:

While this represents the 8th iteration of this device, there is still room for much improvement, and this device should NOT BE USED AS A LIFE-SAVING DEVICE. With further improvements, this could be appropriate for training purposes. Use as a resuscitator would require FDA approval.

This design focused on the valves, (the design of the mask was largely secondary and unconsidered).

Construction:

The device is completely printable in PLA except for the air bulb (however, it is advantageous to add sealant at certain points to improve the quality of seals achieved). This device is scalable, and the bulb currently being used is not one designed for medical use (it is much smaller), and the files here should be printed to fit the bulb being used.

This device is comprised of two-sub assemblies, an input and an output valve. The input valve is one-way check-valve that pulls in air, while not allowing air to escape when the bladder is compressed. The output valve is a two way check valve, designed to allow air enter the mask upon compressions. Upon the release of the bulb, the airway into the bulb seals so that the air escaping the infants lungs can leave the end of the valve.

